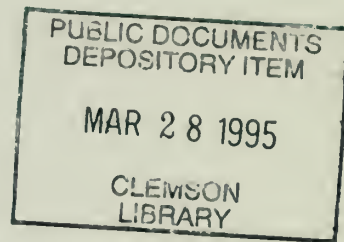


U.S. PRAIRIE POTHOLE JOINT VENTURE
IMPLEMENTATION PLAN
UPDATE



JANUARY 1995



Digitized by the Internet Archive
in 2013

<http://archive.org/details/usprairiepothole01unse>

U.S. PRAIRIE POTHOLE JOINT VENTURE
IMPLEMENTATION PLAN
UPDATE



JANUARY 1995

THE UNIVERSITY OF CHICAGO

LIBRARY

1950



1950

TABLE OF CONTENTS

FIGURES

1. Prairie Pothole Region	F1
2. Counties Within the U.S. Prairie Pothole Joint Venture	F2
Preface - Partnerships in Progress	1-2
Executive Summary	3-4
Introduction	5-6
Goals, Objectives, and Strategies	7-17
State Action Plans	18
Financing PPJV Implementation Strategies	19-21
Evaluation of the Prairie Pothole Joint Venture	22-26

TABLES

1. Population Objectives at Different PPJV Planning Stages	10
2. PPJV Habitat Objectives (Acres) Through the Year 2001	11
3. PPJV Implementation Cost Projections (1994-2001)	21

APPENDICES

A. PPJV Organization and Responsibilities	A1-A6
B. PPJV Management Board Priority Actions	B1-B3
C. Studies of Non-Game Response to Various Management Strategies	C1-C3
D. Implementation Guidelines for Management Strategies	D1-D24
E. Communication Plan	E1-E12

FIGURE 1 PRAIRIE POTHOLE REGION

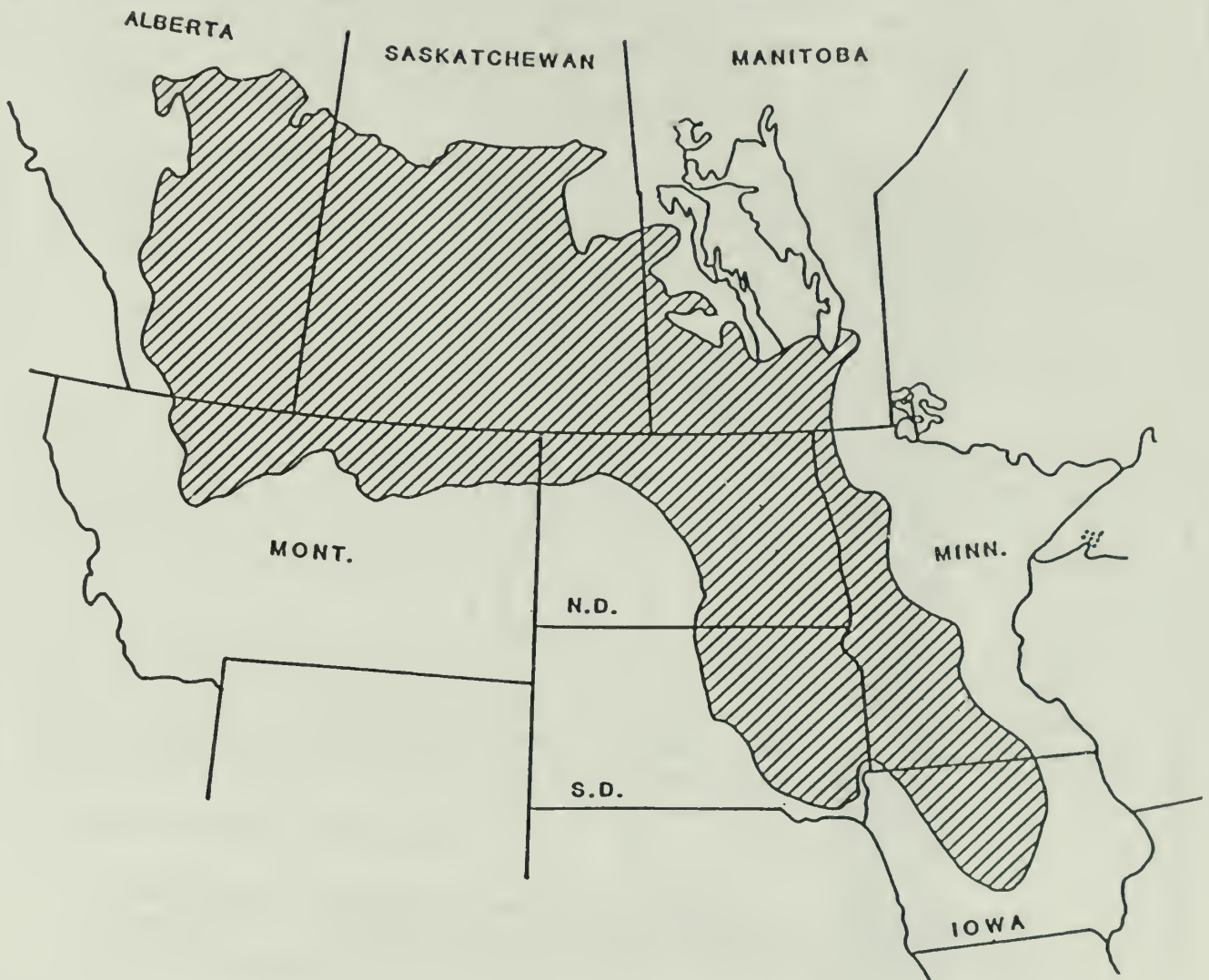
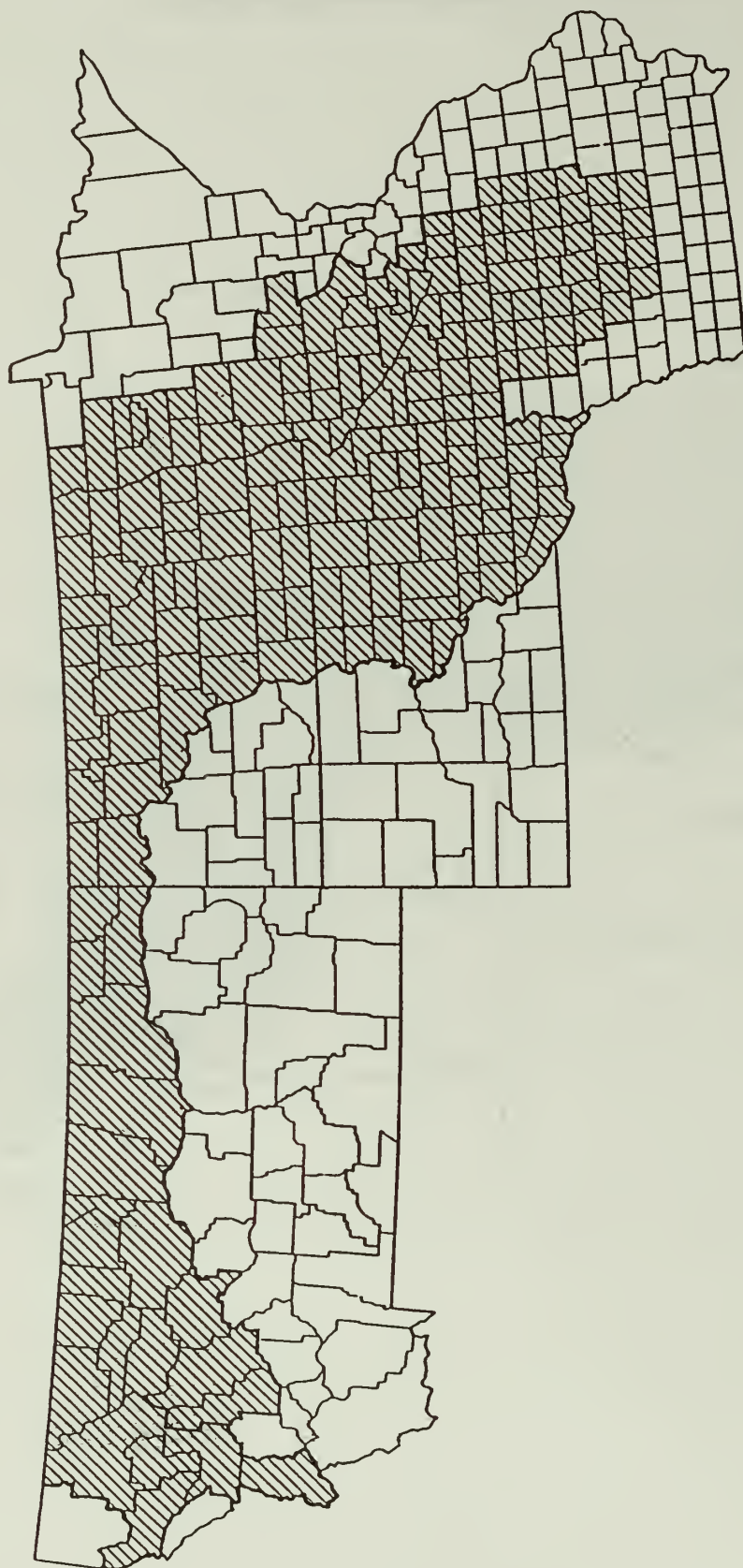


FIGURE 2 COUNTIES WITHIN THE U.S. PRAIRIE POTHOLE REGION



PREFACE

PARTNERSHIPS IN PROGRESS

The North American Waterfowl Management Plan (NAWMP), signed in 1986, recognizes that the recovery and perpetuation of waterfowl populations depends on restoring wetlands/grassland ecosystems throughout the North American continent. As a result, it established cooperative international efforts to reverse the declines in waterfowl populations and their habitats.

To date, the NAWMP contains 12 habitat joint ventures and two species joint ventures with a wide variety of public and private partners. **The U.S. Prairie Pothole Joint Venture (PPJV)** is one of the original six joint ventures, and continues to be recognized in the **1994** update to the **NAWMP** in the following manner:

"The highest priority continues to be the mid-continent prairie breeding grounds in the United States and Canada."

During the PPJV's first 7 years, partners have raised over \$139,386,609 to protect, restore, or enhance over 1,896,310 habitat acres. Although these figures are significant in their own right, the fact that this work was accomplished in a sparsely populated region where financial resources may often be lacking, makes them that much more laudable.

The PPJV continues to uphold its philosophy of working on projects at the local level, providing opportunities for a variety of partners to participate in planning, implementation, and evaluation of activities. Joint Venture partners particularly emphasize close working relationships with private landowners to integrate wildlife conservation practices while maintaining a profitable agricultural return.

The 1994 NAWMP Update states:

"The NAWMP's purpose is to achieve waterfowl conservation while maintaining or enhancing associated ecological values, in harmony with other human needs."

The PPJV Implementation Plan Update embodies the spirit of the NAWMP, endeavoring to incorporate an ecosystem approach to waterfowl management and seeking out opportunities to initiate new partnerships and enhance existing alliances.

Special opportunities exist to develop relationships and projects across international borders, particularly with the Canadian Prairie Habitat Joint Venture and Provincial Wetland Corporations.

The PPJV Management Board (Board) recognizes that PPJV partners' specific interests may vary, and each will not routinely endorse or employ every strategy discussed in the PPJV Implementation Plan. However, the Board supports the Implementation Plan's goals and objectives, and agrees upon the need for action. State Action Groups/Steering Committees will be responsible for stepping down the PPJV Implementation Plan to specific strategies and ensuring that, to the extent possible, partnership needs are met and PPJV objectives are fulfilled.

The PPJV Board acknowledges the PPJV Implementation Plan Update Committee for their contribution in developing this updated PPJV Implementation Plan:

Lee Gladfelter	Iowa Department of Natural Resources
Keith W. Harmon	Wildlife Management Institute, Retired
Jim Leach	U.S. Fish and Wildlife Service
Carol Lively	U.S. Fish and Wildlife Service
Terry Messmer	Dakota Wildlife Trust/Utah State University
Jeff Nelson	Ducks Unlimited, Inc.
Barb Pardo	U.S. Fish and Wildlife Service
Terry Riley	Wildlife Management Institute
Ken Sambor	North Dakota Action Group

EXECUTIVE SUMMARY

Wetlands in the Prairie Pothole Region (PPR), (Figure 1), are among the continent's most biologically productive systems, providing habitat for waterfowl, shorebirds, wading birds, amphibians, and a variety of other wildlife. These wetlands are important for maintaining and recharging groundwater supplies and improving water quality, for storing floodwaters, and for trapping sediments. The PPR wetland complexes and their associated grasslands are an integral component of the prairie landscape, providing a wide array of ecological, social, and economic benefits.

Historically, PPR wetlands have been regarded as impediments to development and have been targeted to be drained and filled. Across the lower 48 states, more than half of the original 200 million acres of wetlands have been lost to various causes, including drainage and intensive agriculture. Wetland habitat loss has created a dramatic decline in wetland-dependent wildlife populations, especially waterfowl.

In 1986, the United States and Canada signed the NAWMP in response to concerns over the dramatic loss of wetlands and declines in waterfowl populations. The NAWMP is a framework for protecting, restoring, creating, and enhancing critical wetland habitat in the United States and Canada. The NAWMP calls for the formation of partnerships between state and Federal governments, and private organizations to cooperate in the planning, funding, and implementation of projects to conserve and enhance wetland habitat in high priority "joint venture" regions.

The PPJV, (Figure 2), was designated as one of the six original joint ventures. The PPJV began activities in 1987, and has made substantial progress in developing partnerships for the protection, restoration, and enhancement of wetlands. Specific accomplishments may be found in **"Partnerships in Progress, U.S. Prairie Pothole Joint Venture Accomplishments 1987-1993."**

The NAWMP was updated in 1994 to reflect accomplishments and changing times on a continent-wide basis. This 1994 PPJV update, as a stepdown from the NAWMP, also reflects the changes and accomplishments that have occurred since PPJV activities were initiated. This document provides a broad, comprehensive set of strategies and actions to guide PPJV activities. State Action Plans, developed by each state in the PPJV, further break down the PPJV Implementation Plan to specific actions and operations at the local level.

The goal of the updated PPJV is:

To increase waterfowl populations through habitat conservation projects that improve natural diversity across the U.S. Prairie Pothole landscape.

The PPJV will strive to provide breeding habitat capable of supporting 6.8 million breeding ducks, including 1.2 million mallards and 1.1 million pintails, that produce a fall flight of 9.5 million ducks under average environmental conditions.

The habitat acreage objectives developed by each of the states will continue to be refined as management techniques for both waterfowl and other wetland/grassland associated wildlife are researched and implemented. The PPJV habitat acreage objectives are 1,891,315 acres protected, 744,898 acres restored and 3,664,500 acres enhanced. From the period 1987-1993, PPJV partners protected 1,413,982 acres, restored 125,272 acres, and enhanced 357,066 acres of wetland and grassland.

The PPJV continues to emphasize the importance of working with private landowners, and recognizes the significant contributions that the U.S. Department of Agriculture (USDA), the Conservation Reserve Program (CRP), the Wetland Reserve Program (WRP), and the Water Bank Program (WBP) make to meeting the objectives of the NAWMP. As of 1993, approximately 12 million acres of CRP had been enrolled in the states of Minnesota, North and South Dakota, Iowa, and Montana, with 6.8 million acres located in the PPJV. These 6.8 million acres and another 550,000 acres enrolled in the WBP, contribute excellent wetland and upland habitat for a variety of wildlife.

While ducks continue to be a major focus of the PPJV, other wildlife, in particular, wetland/grassland migratory birds, and threatened and endangered species such as the piping plover, will be addressed through partnerships with organizations that include Wetlands for the Americas and Partners In Flight. Waterfowl management strategies that benefit wildlife, in addition to ducks, will be identified and supported. Where opportunities are present, specific non-waterfowl management strategies may be developed and implemented. Groundwater recharge, water quality, and recreational opportunities will continue to be important byproducts of PPJV activities.

The estimated cost to implement the strategies described in the PPJV 1994 Implementation Plan update is \$2,440,863,000. Although this amount seems high, CRP and other USDA programs, if implemented, will continue to contribute a significant portion to this investment. Remaining costs would be shared by Federal and state agencies, private organizations, corporations, and individuals dedicated to the goals of the PPJV and the NAWMP. Cost of implementation of preferred strategies may vary greatly from state to state and site to site across the PPJV.

INTRODUCTION

Historically, the glaciated landscape of the PPR, located in the north central United States and south central Canada, consisted of a large grassland ecosystem dotted with millions of lakes, ponds, and marshes. Water that fell onto this landscape was largely retained in these wetland basins due to the poorly defined natural drainage network. These wetlands and associated grasslands provided excellent habitat for many wildlife species.

Today, the PPR remains the most important waterfowl producing region on the continent, generating more than half of North America's ducks. Nearly 15 percent of the continental waterfowl population comes from the PPJV region (Montana, the Dakotas, Minnesota, and Iowa). As many as 10 million ducks and 2 million geese use the PPJV region during migration or for nesting. The wetlands and associated grassland habitat in the PPJV region provide breeding habitat to over 200 species of migratory birds. Bald eagles, peregrine falcons, whooping cranes, piping plovers, and interior least terns frequent the PPJV region during migration and breeding periods.

During the last century, the grasslands of the PPR were largely converted to intensively cultivated cropland or were heavily grazed and hayed for cattle and sheep production. As the need for developed land accelerated, drainage was necessary to convert wetlands to cropland. Federally subsidized drainage programs eliminated nearly all wetlands in some areas. These changes in land-use and wetland drainage accelerated down-stream flooding and soil erosion, impaired water quality, contaminated groundwater, and degraded fish and wildlife habitat.

In the last 25 years, populations of many North American wildlife species have shown steep, consistent, and geographically widespread population declines. Several grassland bird species, endemic to the PPR, in addition to several species of waterfowl, have shown some of the steepest and most widespread population declines. Species considered endemic to the PPR are those whose current geographical breeding range is mostly contained within the region and that commonly depend on grassland-wetland complexes for food and cover.

Loss of grassland habitat and associated wetlands is believed to have negatively affected most PPR wildlife. The fragmentation of the prairies into small remnant patches by intensive cultivation is believed to be primarily responsible for these declines.

Concern over the rapid decline in waterfowl and other wetland wildlife led to the development of the NAWMP which was signed on May 14, 1986, by the United States and Canada. Specific NAWMP objectives are to increase and restore duck populations to the average levels of the 1970s, i.e., 62 million breeding ducks and a fall flight of 100 million birds. The NAWMP recommends implementation of joint ventures as a mechanism by which government agencies, private organizations, and individuals can cooperate in planning, funding, and implementing actions that assist in rebuilding waterfowl populations.

The PPR was identified in the NAWMP as the top priority waterfowl breeding area with respect to action and funding. The United States' portion of this region was identified as one of six initial joint ventures. Presently, 12 habitat joint ventures are in operation.

In late 1987, the PPJV Board was organized to identify and implement specific management strategies which addressed habitat and population objectives of the NAWMP. The Board consists of representatives from Federal and state agencies, private conservation organizations, and individuals with management responsibilities for, and interest in, waterfowl and associated wildlife populations. Information on PPJV organization and responsibilities is contained in Appendix A. Priority actions for the Board are located in Appendix B.

The PPJV Implementation Plan was prepared in 1989, and outlined goals, objectives and strategies for Joint Venture activities. State Action Plans that stepped PPJV activities down to the state and local level were prepared by individual State Action Groups/Steering Committees. These groups (that continue to implement joint venture activities at the state and local level) are composed of a cross-section of waterfowl and non-waterfowl interests. They continue to evolve as broader partnerships are formed.

Since the establishment of the PPJV, numerous habitat protection, restoration, and enhancement projects have been completed by Joint Venture partners, using the North American Wetlands Conservation Act (NAWCA) and partner contributions as major sources of support. A summary of PPJV accomplishments from 1987 through 1993 was prepared and distributed in 1994.

This PPJV Implementation Plan Update continues to emphasize waterfowl while providing additional objectives and strategies for other wetland-associated wildlife. The PPJV encourages consumptive and non-consumptive user groups to become active partners in projects that emphasize wetland and associated grassland conservation.

Although annual waterfowl harvests are an important component of waterfowl management, this plan addresses only production, recruitment, and habitat issues.

Hunting regulations are, and will continue to be, addressed by the existing regulatory process.

GOALS, OBJECTIVES AND STRATEGIES

GOAL

The goal of the PPJV is to increase waterfowl populations through habitat conservation projects that improve natural diversity across the U.S. Prairie Pothole landscape.

Note: For the purposes of this document, natural diversity is defined as an appropriate mix of plant and animal communities that can be sustained in association with profitable agriculture.

Waterfowl breeding populations have always fluctuated in the PPR with wetland abundance and quality. Dry conditions are common in grasslands, but abundant rain and snow, cool temperatures, and high soil moisture levels periodically combine to create extensive complexes of a diversity of wetland types in this region. Prior to the extensive loss of grassland/wetland complexes, the PPR produced an abundance of waterfowl and other migratory birds during wet years. Waterfowl populations increased during rare sequences of abnormally wet conditions, and probably declined or stabilized when drier or moderate conditions returned.

The goal of the PPJV is to implement landscape level habitat projects so that waterfowl populations increase during the wet years and stabilize under moderate conditions. Since little can be done to stabilize breeding populations across the PPR during extended drought, PPJV strategies are designed to implement actions that take advantage of years when precipitation is at least normal.

Intensive agriculture is the predominate land use throughout the PPR. Large, intensively cultivated fields of small grains or row crops have replaced once diversified farms that incorporated livestock into their operations. With the reduced numbers of livestock, many farmers have converted pastures and hayfields

to cropland. Except on marginal lands or lands enrolled in government land retirement programs, wildlife cover has been largely eliminated to facilitate the use of large equipment now employed by modern agriculture. Much of the natural diversity formerly found in the PPR has been eliminated. Subsequently, most upland nesting waterfowl and many species of grassland birds have experienced steep decline over the past three decades.

Improved diversity that can be sustained in association with profitable agriculture is resulting from PPJV strategies at the landscape level. The protection and restoration of grasslands, in combination with complexes of wetland types, will be the primary means by which the PPJV will improve both waterfowl production and natural diversity. Where large grasslands are secure, wetlands will be restored, enhanced, or created. In areas where intensive cultivation will persist and wetlands are abundant, more intensive conservation actions are necessary, e.g., grassland easements/leases and nesting structures.

PRAIRIE POTHOLE JOINT VENTURE OBJECTIVES

Effective objectives are specific, precise, and measurable. They should serve as mileposts and be designed to ensure that the goal of the PPJV is achieved. Two objectives will serve these functions for the joint venture.

OBJECTIVE 1

By the year 2001, conserve habitat capable of supporting 6.8 million breeding ducks that achieve a recruitment rate of 0.6 under average environmental conditions, with all managed areas achieving a recruitment rate of 0.49 at a minimum.

Note: Recruitment rate is defined as females fledged per breeding female. Managed areas are those leased or owned and managed for waterfowl production by state or Federal wildlife agencies and private conservation organizations.

The above objective would produce a fall flight of about 9.5 million birds, if 6.8 million breeding ducks recruited at a rate of 0.6. Under wet conditions, more than 6.8 million breeding ducks would be accommodated, and recruitment rates would exceed 0.6. Of the 6.8 million breeding ducks, stepped down from overall NAWMP objectives for average conditions and based on historical distributions, about 1.2 million mallards and 1.1 million pintails would be expected. These two species were singled out as being of special concern, because they declined more than most other waterfowl species in the PPR and have continental breeding population goals listed in the NAWMP. Table 1, on the following page, represents a stepdown of population objectives from the NAWMP to the PPJV.

**Table 1. POPULATION OBJECTIVES AT
DIFFERENT NAWMP PLANNING STAGES.**

NORTH AMERICAN WATERFOWL MANAGEMENT PLAN
62 million breeding ducks (8.7 million breeding mallards) (6.3 million breeding pintails) 100 million duck fall flight

PRAIRIE POTHOLE JOINT VENTURE PLAN
6.8 million breeding ducks (1.2 million breeding mallards) (1.1 million breeding pintails) 0.6 recruitment rate 9.5 million duck fall flight

A recruitment rate of 0.6 was calculated as necessary to increase the mallard population from 1990 levels in the PPR to the target level of 1.2 million by 2001, given present hen survival rates. The mallard was selected as an indicator species for upland-nesting ducks, because it is the best understood of the upland-nesting species. The recruitment rate objective should vary by species, depending upon survival rates and desired population growth, however, for simplicity, 0.6 was chosen as a level that would likely result in meeting the breeding population target.

The NAWMP originally recommended a PPR nesting success rate (percentage of nests hatched) of 50 percent. However, after a review of PPR nesting studies, the Waterfowl Technical Committee (WTC) of the PPJV concluded that this rate of success was unrealistic across the PPR landscape, even though it has been observed on intensively managed areas. Depending upon duckling survival and breeding effort, achieving a recruitment rate of 0.6 will require an average nest success rate of about 18 percent.

The following table reflects habitat objectives (protected, restored, enhanced) that have been provided by State PPJV coordinators for the 1987 - 1993 PPJV Accomplishment Report, and are currently identified as objectives (acres) for the PPJV in the 1994 NAWMP Update.

Table 2. PPJV HABITAT OBJECTIVES (ACRES), 1986 THROUGH THE YEAR 2001

STATE	PROTECTED	RESTORED	ENHANCED
IOWA	40,000	17,500	42,500
MINNESOTA	* 1,200,000	60,000	1,800,000
MONTANA	40,000	80,000	80,000
NORTH DAKOTA	510,000	485,000	1,550,000
SOUTH DAKOTA	101,315	102,398	192,000
TOTAL OBJECTIVES (ACRES) FOR PPJV	1,891,315	744,898	3,664,500

* Includes 1,000,000 acres protected by the MN Wetland Conservation Act of 1991 (regulatory).

NOTE: Simply adding up the protected, restored, and enhanced categories gives a false impression of the total acres to be affected. Some restoration and enhancement acres may already be counted in the protection category.

OBJECTIVE 2

Stabilize or increase populations of declining wetland/grassland-associated wildlife species in the PPR, with special emphasis on non-waterfowl migratory birds.

This objective, when combined with the first objective, will ensure that conservation efforts designed to achieve waterfowl goals are not detrimental to other wetlands/grassland-associated wildlife already in decline. Whenever possible, Joint Venture implementation strategies will be designed to be beneficial to all migratory birds. In delivering habitat conservation efforts to achieve both objectives, improved natural diversity in the prairie landscape will be accomplished.

Progress toward this objective will be monitored through the Fish and Wildlife Service (Service)/National Biological Survey (NBS) Breeding Bird Survey (BBS) and through specific monitoring and research projects designed to measure response of these species to conservation efforts being implemented. A much better understanding of how wetland/grassland-associated wildlife responds to management actions is required. Particular emphasis will be placed on non-waterfowl migratory birds that have exhibited downward trends in population levels, as well as threatened and endangered species such as the piping plover.

Habitat problems for many declining wetland/grassland-associated non-waterfowl migratory birds are closely linked to those being experienced by waterfowl. Fragmentation of the prairie, loss of certain wetland types and nesting cover, intensive grazing of remnant grassland, and altered predator communities have contributed to the decline of prairie wildlife populations in general. Habitat conservation strategies for other prairie wildlife in the PPR will be very similar to those employed for waterfowl. Implementation strategies will focus on restoring prairie wetland complexes and vegetation communities, while protecting wetland and remnant native tracts. In some cases, modifications can be made to habitat programs designed to benefit waterfowl so that key elements are provided for more specialized species, thereby adding value to conservation efforts.

The Service estimates there are over 800 migratory bird species in North America, of which 225 breed in the PPR. Several grassland species have declined significantly over the past three decades, according to the BBS. Lark bunting and grasshopper sparrow declined by more than 4 percent per year, while the bobolink declined by 2.7 percent, the Baird's sparrow by 2 percent, and the dickcissel by 1.5 percent. All these species seem to respond positively to reestablished grassland in the PPR. Other analyses of these data indicate that wetland conservation actions taken to benefit waterfowl on the prairies have stabilized populations of marbled godwit and Wilson's phalarope.

Appendix C references various studies conducted to ascertain the impact of various land management practices on non-waterfowl species.

PRAIRIE POTHOLE JOINT VENTURE STRATEGIES

Strategies are those actions which have been determined necessary, effective, and reasonable to address factors impeding attainment of the objectives and, ultimately, the goal of the Joint Venture.

Strategies are the actions which agencies, organizations, and individuals implement to achieve the goal of the PPJV by focusing their time, dollars, and personnel. Strategies are the tools that the PPJV partners use to restore the landscape and to manage wildlife populations in the Joint Venture.

The basic strategies to be used in the PPJV are wetland and/or grassland protection, restoration, creation, and enhancement. More intensive practices such as predator exclosures, rotational grazing systems, and nesting structures will be employed on a site-by-site basis where natural habitat management opportunities cannot be realized.

The fundamental biological problems impeding attainment of the objectives in the PPJV are habitat loss and degradation. The combined impact of these factors has resulted in unacceptably low waterfowl production and declining populations of waterfowl and other wetland/grassland associated migratory birds. Habitat loss in the PPR is generally the result of wetland drainage and agricultural conversion of native grasslands to cropland. Habitat loss, increased populations of certain predator species, especially red fox and raccoon, have impacted nesting success.

This plan recognizes that the majority of wetlands, grasslands, waterfowl production, and other wildlife occur on private lands. Within the confines of operating a profitable agricultural enterprise, preserving habitat and producing waterfowl and other wildlife must include adequate compensation or benefits for the private landowner, while providing acceptable alternatives to traditional cropping and livestock grazing practices. As such, USDA programs will continue to play a major role in achieving PPJV objectives. While resource management agencies and organizations have limited impact on agricultural land practices, the Federal farm bills and individual landowner practices provide great opportunity for habitat gains on private lands in the PPJV. Maintaining and refining farm bill

provisions for swampbuster, sodbuster, the CRP, and the WRP continue to be a major focus of PPJV partner activities. Maintaining the WBP will also be a related effort.

This plan also recognizes that acquisition of land in fee title is usually the most secure method of protecting and managing habitat. However, it is apparent that fee title acquisition reaches financial, management, social acceptability, and political limits well before waterfowl and other wildlife habitat and population objectives can be obtained. All levels of NAWMP planning recognize that the waterfowl production problem cannot be solved by fee acquisition. Fee acquisition will continue to be a major Joint Venture strategy, because perpetually protected core areas (National Wildlife Refuges, Waterfowl Production Areas, State Management Areas), beyond their intrinsic value, are the foundation for expanding habitat conservation activities on private lands.

Perpetual and other long term easements of both wetlands and grasslands are also vital components of the protection and improvement strategies of this plan. Easements are somewhat less costly, and remain both socially and politically more acceptable.

The strategies outlined in this plan combine to create a landscape level approach to management. Strategies are targeted to meet the biological needs of waterfowl and wetland/grassland associated wildlife in virtually every type of landscape where improved management is deemed reasonable. Strategies have been devised to provide for the involvement of a broad range of agencies, organizations, and individuals within the joint venture. Most strategies are continuations and expansions of existing management programs that implement practices of proven benefit.

PPJV IMPLEMENTATION STRATEGIES

WETLAND STRATEGIES

Existing quantity, quality, and complex associations of wetlands in the PPR are inadequate to:

- attract and support sufficient waterfowl breeding pairs
- support waterfowl broods
- attract and support stable or increasing populations of wetland associated migratory birds.

PPJV Implementation strategies will include the following:

- Protect existing wetlands (fee title, easement, lease)
- Restore drained wetlands (public and private lands)
- Create wetlands (stock dams, dugouts, erosion control reservoirs)
- Enhance/Manage wetlands (vegetation management, water control management)

GRASSLAND STRATEGIES

Secure, suitable, grassland breeding habitat is inadequate to maintain or increase populations of waterfowl and other grassland nesting migratory birds.

PPJV strategies will include the following:

- Protect remaining native grasslands (fee title, easement, lease)
- Protect CRP grassland acreage (fee title, short-term through perpetual easements)
- Convert and restore former cropland to grassland (public and private)
- Manage grasslands (burning, rotational grazing, seeding, delayed haying)

POPULATION STRATEGIES

Baseline data collection, intensive population monitoring, and in certain circumstances, intensive wildlife management actions are collectively necessary to stabilize or increase waterfowl and other wetland/grassland migratory bird populations.

PPJV strategies will include the following:

- Population monitoring and data collection (breeding pair and production surveys, BBS, and point counts)
- Directed studies and research (evaluation of impacts of waterfowl management practices on other migratory birds, shorebird migration patterns, predator impacts)
- Predator management (peninsula cut-offs, nesting structures, island creation, predator exclosures)

COMMUNICATIONS STRATEGIES

Involving the public and land management agencies in a broad scale, unified effort to induce positive, long term changes in land use on private and public lands to benefit waterfowl and wetland/grassland associated wildlife, is vital to the success of the PPJV.

PPJV strategies will include the following:

- Implement the PPJV Communications Strategy and Action Items. (Appendix E)
- Encourage changes in agricultural land use and management practices that are beneficial to waterfowl and prairie wildlife (reduced use of chemicals, no-till planting techniques, residual cover)

Strategies are meant to be dynamic. As understanding of limiting factors change, as new conservation techniques are developed, and as opportunities change, strategies must be added, eliminated, modified, and shifted in priority.

Appendices D and E contain specific details and guidelines for applying PPJV wetland, grassland, population, and communication strategies.

STATE ACTION PLANS

The goal and objectives of the PPJV are further stepped down to the individual states within this Joint Venture. State Action Groups/Steering Committees are the planning organizations that develop population and habitat objectives to meet established PPJV and NAWMP goals and objectives. Across the PPJV, individual State Action Plans are used by PPJV partners to address and implement strategies at a state and local level.

Updates to State Action Plans will generally follow guidance provided in the PPJV Implementation Plan. However, State Action Plans may vary in their recommendation of certain strategies depending on political, financial, social, and biological considerations.

State Action Plans will be reviewed and updated by State Coordinators and State Action Groups/Steering Committees on an as needed basis.

FINANCING PPJV IMPLEMENTATION STRATEGIES

Funding is essential to PPJV success. Efforts of the best waterfowl managers and access to valuable habitat means little without funding to implement management.

Securing funding to implement PPJV management strategies remains the shared responsibility of Joint Venture principal partners, including Federal and state governments and private conservation organizations. Additional PPJV funding must be through other organizations and individuals who enjoy, benefit from, and engage in consumptive and non-consumptive uses of wildlife.

In the first 6 years, 1987-1993, the PPJV made significant progress towards identifying funding sources outside the state and Federal agency budget process. (See PPJV Accomplishment Report). While the Service and state Fish and Wildlife agencies remain the largest contributors, there was a significant influx of funding from other sources. During that period, \$139,386,609 were generated by PPJV partners in support of population and habitat projects.

Currently, spending by the USDA in programs such as the CRP, WRP, and WBP contributes significantly to achieving the goals of the PPJV. The NAWCA has been a major source of funding for PPJV projects. Ducks Unlimited, Inc. is an integral supporter and implementer of wetland projects in the PPJV. Other conservation organizations such as The Nature Conservancy, National Audubon Society, the National Wildlife Federation, Pheasants Forever, the Fish and Wildlife Foundation, and numerous sports clubs are active participants in projects that address the goals and objectives of the PPJV.

Agricultural interests, including local soil conservation districts, are recognizing the value of the partnerships developed through the PPJV and are providing direct support for habitat projects. County Conservation Boards, Land Trusts, Wildlife Trusts, Native American Tribes, and county governments, are likewise providing support. While agency budgets are getting tighter, unique and innovative partnerships keep the future of the PPJV relatively bright.

The PPJV funding strategy can be condensed into a single word, "partnerships." The Joint Venture will continue to promote partnerships (particularly in the agricultural and agency sector) to support habitat protection, restoration, and management activities. PPJV partners will become more active in identifying and pursuing "non-traditional" outside funding sources and looking for matching funds

to provide maximum leverage with those sources. Local support, corporate sponsorship, foundation grants, Federal grants, and direct fund raising are all viable options that need to be aggressively explored by PPJV partners.

State and Federal agencies must pursue new funding to enhance existing budgets for their respective existing and new programs. Private organizations must assist with promoting these budgets through Congress and State legislatures, and strengthen private fund raising capabilities to generate new dollars or matching funds.

A major effort is required on all fronts to capture public support for soil, water, and wildlife conservation measures, and provide the funding support that will guarantee success for the NAWMP and the PPJV. (See Table 3).

Table 3. PPJV Implementation Cost Projections (1994-2001)
 ☆ Numbers Taken from PPJV Accomplishments Report (1987-1993)

Acres		Protected	Restored	Enhanced
Habitat Objective ☆		1,891,315	744,898	3,664,500
Habitat Accomplishment ☆		1,413,982	125,272	357,066
Remaining Habitat Balance		Acres		Cost
PROTECTED	477,333	FWS	160,000	160,000,000
		USDA *	80,000	80,000,000
		States	100,000	100,000,000
		Other Federal	50,000	50,000,000
		NGO	87,333	87,333,000
			<u>477,333</u>	<u>\$477,333,000</u>
RESTORED	619,626	FWS	160,000	80,000,000
		USDA * **	190,000	95,000,000
		States	120,000	60,000,000
		Other Federal	30,000	15,000,000
		NGO	119,626	59,813,000
			<u>619,626</u>	<u>\$309,813,000</u>
ENHANCED	3,307,434	FWS	800,000	400,000,000
		USDA **	1,850,000	925,000,000
		States	500,000	250,000,000
		Other Federal	100,000	50,000,000
		NGO	57,434	28,717,000
			<u>3,307,434</u>	<u>\$1,653,717,000</u>

* Includes estimated Wetland Reserve Program Contributions

** Assumes extension of Conservation Reserve Program contracts and/or creation of an upland easement program

EVALUATION OF THE PRAIRIE POTHOLE JOINT VENTURE

The PPJV potential contribution to the NAWMP continental objective of 62 million breeding ducks is significant.

In 1989, the PPJV Management Board adopted the following waterfowl population objectives:

- Accommodate an average of 6.8 million breeding ducks,
- Accommodate an average of 1.2 million breeding mallards,
- Accommodate an average of 1.1 million breeding pintails, and
- Contribute 13.6 million ducks to the fall flight.

The NAWMP recommended a nesting success of 50 percent for the PPR. Upon careful review, the PPJV's Waterfowl Technical Committee (WTC), concluded that, at least for the U.S. portion of the PPR, this rate of nesting success was unrealistic, and unlikely to be achieved.

Consequently, in 1991, based on advice and recommendations from the WTC the PPJV Management Board modified those objectives to include a recruitment rate of 0.6, with no area under management for breeding waterfowl having a rate below 0.49. While the PPJV breeding duck objective currently remains the same, the 0.6 recruitment rate required that the fall flight objective be adjusted to 9.5 million ducks.

An evaluation plan has been approved by the Management Board and by the NAWMP Committee to evaluate accomplishments and guide future management. The PPJV evaluation plan consists of three components:

- Monitoring
- Assessment
- Directed Studies

MONITORING

Monitoring is "the process of assimilating status information on habitat and populations." It measures whether population objectives have been achieved through application of management strategies. This is done by:

- tracking or tabulating management practices (inputs) applied
- estimating duck populations or their parameters (outputs), and
- establishing land-use (landscape) trends.

When applied in conjunction with a strategic plan, monitoring provides feedback on whether a management practice(s) has achieved expected recruitment rates. This information then provides guidance for adjusting and making future management decisions.

PPJV Objective 1 is stated in terms of duck populations and recruitment rates. Monitoring is critical for adjusting or refining management strategies. Monitoring uses existing institutions, personnel, and operations. On-going programs of monitoring, e.g., nest success, breeding populations, annual production and survival, breeding bird surveys, and surveys of habitat conditions are adequate as designed for current data needs.

The Population and Production Estimates System (PPES) will be used to monitor breeding pair populations and estimate recruitment. The PPES consists of randomly located Four-Square-Mile (FSM) plots on which duck populations, wetland information and wetland associated wildlife population information are recorded annually. Also, non-wetland habitats are monitored at 5-year intervals. This system is operational in most of the PPJV.

The Continental Evaluation Team's (CET) draft "Non-waterfowl Evaluation Proposal" suggests coordinated monitoring with entities specializing in non-waterfowl species. The PPJV's monitoring efforts will be coordinated with, among others:

- Partners in Flight
- Wetlands for the Americas
- Service/NBS Breeding Bird Survey
- Iowa Cooperative Fisheries and Wildlife Research Unit

Research findings show that predation is the most important factor depressing waterfowl production. Therefore, expansion of predator surveys is essential for designing waterfowl management strategies.

The evaluation plan uses FSM sample plots to monitor habitat conditions and trends. Sample plot information will be updated at 5-year intervals, and habitat conditions and trends will be compared over time.

ASSESSMENT

While monitoring provides input for certain waterfowl population parameters, detailed assessment tests key assumptions about nesting effort and success, cover attractiveness, brood survival, and hen survival.

Assessment will test these parameters on six sites (3 treatment, 3 control), using two sites per year for 3 years, beginning in 1996. Initial assessment study sites will include CRP lands, and habitat programs with the highest cost, or of greatest predicted importance. Landscapes proposed for study will contain enough of the most important cover types to guarantee meaningful sample sizes of nests.

Data-based estimates of actual numbers of breeding pairs of mallards in the spring and the number of ducklings fledged to the fall flight, compared to final model output, will provide the information necessary to validate and update the Mallard Production Model (MPM) performance. For each study area, estimates will be provided for:

- Breeding pairs
- Cover attractiveness
- Nest success
- Breeding effort
- Brood and duckling survival and
- Summer hen survival.

Two study sites (1 treated, 1 control) per year would be operational in 1996, another two in 1997, and a final two in 1998. First-year costs are estimated at \$644,000. Second and third year costs at \$494,000 apiece. Total assessment costs are estimated at \$1,632,000 for six sites over a 3-year period.

About one-half the annual assessment costs should be a project cost. While not every project would be subjected to assessment, funds would be pooled and expended on selected assessment sites. As assessment efforts proceed, some redirecting of state, Federal, and private research toward PPJV assessment would be possible.

DIRECTED STUDIES

Directed studies (research and development) will fill knowledge gaps or provide new management tools. The Management Board will act as a clearing house for setting directed studies priorities.

To be high priority, directed studies should:

- Contribute to practical and timely solutions
- Establish time frames and expected products
- Avoid duplication of current research
- Redirect management strategies quickly
- Address more costly management strategies
- Address methods that produce larger numbers of ducks
- Maintain reasonable costs

ANNUAL FINDINGS AND REPORTING SCHEDULE

In addition to annual reports, the PPJV Technical Committee will prepare a formal 5-year report. That report will precede by one year, the NAWMP's 5-year update. This allows for major strategy adjustments based on monitoring, assessment, and directed studies findings for PPJV Implementation Plan revisions.

PPJV ORGANIZATION AND RESPONSIBILITIES

The PPJV is one of the original six priority joint ventures of the NAWMP. Success of the PPJV requires the coordinated commitment of both personnel and funds from participating private organizations and State and Federal agencies.

The PPJV is composed of a multi-agency/organization Management Board, five multi-agency/organizations State Action Groups/Steering Committees, a Joint Venture Coordinator and farmers, ranchers, communities, businesses, wildlife organizations and clubs, colleges and universities, school and youth groups, and many concerned citizen conservationists throughout the PPR. Additional agencies, organizations, and individuals are invited to join the PPJV as partners in on-the-ground waterfowl and habitat conservation efforts.

U.S. PRAIRIE POTHOLE JOINT VENTURE MANAGEMENT BOARD

The PPJV Board consists of the following agencies and organizations:

Iowa Department of Natural Resources

Minnesota Department of Natural Resources

Montana Department of Fish, Wildlife, and Parks

North Dakota Game and Fish Department

South Dakota Department of Game, Fish and Parks

U.S. Fish and Wildlife Service

Dakota Wildlife Trust

Ducks Unlimited, Inc.

National Wildlife Federation

The Nature Conservancy

Wildlife Management Institute

Audubon Society

Delta Waterfowl Foundation

Pheasants Forever

The BOARD provides general oversight and guidance for the joint venture. It is a broad policy making group, interpreting the NAWMP's international goals and objectives into direction and instruction for the PPJV. Specific responsibilities include:

- Review and take action on committee recommendations
- Ensure communication and problem resolution among Federal, State, and private PPJV partners
- Prioritize PPJV and North American Wetlands Conservation Act projects
- Determine policy and guide implementation of PPJV activities
- Influence and take action on national and international policy and legislative issues

The CHAIRPERSON of the Board is responsible for organizing regular meetings of the Board, assigning tasks and providing agendas for meetings, facilitating group decision making, and evaluating progress of committees and projects. The Chairperson instructs, coordinates, and participates in the decision-making process of the Board. The Chairperson functions as spokesperson for the PPJV in public relations efforts, particularly at high-level meetings, banquets, and other public gatherings where PPJV efforts will be promoted.

BOARD members are responsible for participating on working committees, participating in State Steering Committees or Action Groups, and for providing up-to-date information and review on PPJV projects. Members assist in bringing new initiatives to the Board, ensure good internal communications on PPJV matters in their respective agencies or organizations, provide assistance on external communications and fund raising, and provide regular feedback and evaluation to their agencies or organizations and to the Board on PPJV activities.

MANAGEMENT BOARD PARTNER RESPONSIBILITIES

A brief list of responsibilities and strategies for meeting PPJV objectives include, but are not limited to, the following:

- U.S. Fish and Wildlife Service
 - Serves as primary coordinating agency for administration and funding distribution to PPJV activities.
 - Uses partnerships with other Federal and state agencies, private conservation organizations and landowners and programs such as NAWCA to enhance and protect wetland habitat.
 - Uses long-term protection strategies, intensive management, and newly developed short-term easements and extension agreements in combination with USDA programs to enhance and protect wetland habitat. (Small Wetlands Acquisition Program, National Wildlife Refuge System, Perpetual Grassland Easements, Extension Agreements).
 - Provides technical assistance, information and education materials, and education programs to enhance wildlife and wetland habitat on private lands.
- State Wildlife Agencies
 - Provide leadership to organize, implement, and sustain State Action Group/Steering Committee activities necessary to obtaining goals and objectives identified in PPJV and State Implementation and Project Plans.
 - Coordinate State funding allocations to PPJV projects.
 - Expand private lands programs and intensive management activities to enhance and protect waterfowl and wetland habitat using USDA programs whenever possible.
 - Provide technical assistance and distribute information and education materials to promote protection and enhancement of wetland habitat.
 - Enhance coordination of Federal and state waterfowl and wetland programs to achieve PPJV and NAWMP objectives.

- Non-Governmental Conservation Organizations

- Provide support and information at Federal and state levels for agricultural and wetland legislation, as well as for NAWMP and NAWCA policies and procedures that will enhance the capabilities of Federal and state agencies to meet PPJV and NAWMP objectives.
- Develop partnerships with Federal and state agencies to develop and implement wetland habitat protection and enhancement projects, fund positions, fund research and management studies, fund educational materials and other needed projects and activities.
- Provide fund raising expertise and develop, implement, and participate in fund raising efforts for PPJV activities and projects.
- Expand private lands programs including land acquisition and intensive land management activities where applicable.
- Assist in the development and dissemination of wetlands educational materials and information to the media, legislative bodies, and general public.

The JOINT VENTURE COORDINATOR is responsible for coordinating and directing activities in support of the goals and objectives of the NAWMP and PPJV. The Coordinator ensures the integration of needs, agendas, and activities of all member agencies and organizations of the Board, and provides staff support to the Chairman and other Board members. The Coordinator facilitates the development and implementation of PPJV partnerships at all levels, provides direction and technical assistance, and evaluates, reviews, and approves for Board consideration, planning recommendations and reports. The Coordinator guides, encourages, and stimulates positive action at all levels of the PPJV, and serves as a communication link to NAWMP and other joint ventures.

PPJV STANDING COMMITTEES and AD HOC COMMITTEES are constituted and approved by the Board, and their charges are determined with the assistance of the Coordinator. Standing and Ad Hoc Committees have specific goals and assignments. Additional committees may be formed as the need arises. Current PPJV Standing and Ad Hoc committees include:

STANDING COMMITTEES

- Technical Committee - Provides technical biological management guidance to the Management Board, including recommendations on monitoring, assessment, evaluation, planning, cross-regional and cross-border cooperation and activities, implementation and evaluation plan updates, and biological information source for communications activities. Reviews proposals, develops and investigates potential PPJV activities and carries out Board assigned tasks. Convenes working groups as needed to carry out all activities.

The Technical Committee is composed of 5-7 individuals with expertise in the following areas: waterfowl research and management, non-waterfowl migratory bird research and management, strategic planning, prairie ecology, agricultural partnerships and international liaison. The Habitat and Population Evaluation Team (HAPET) offices are ad hoc members of the committee.

- Communications Committee - Plans, develops, conducts, and evaluates a communications/education program for internal and external audiences of the PPJV. Promotes development of informal networking system for information and education programs, extension programs, and media at all PPJV levels.

AD HOC COMMITTEES

- Implementation Plan Committee - Reviews and amends the PPJV Implementation Plan as necessary.

STATE COORDINATORS and STATE ACTION GROUPS/STEERING COMMITTEES

The STATE COORDINATOR is responsible for coordinating and directing the activities of the State Action Group or Steering Committee in support of the goals and objectives set forth in the PPJV Implementation Plan and individual State plans. The State Coordinator assists with the organization and implementation of the Action Group or Steering Committee, and provides technical assistance and direction to all partner agencies, organizations and individuals.

The State Coordinator serves as a liaison between the Action Group or Steering Committee and the PPJV Coordinator. The State Coordinator, may, in some cases, be a member of the PPJV Management Board.

The STATE ACTION GROUP/STEERING COMMITTEE is a broad-based entity whose members support the purpose of the NAWMP and the PPJV. Membership includes Federal and state agencies, private conservation organizations, and interested individuals. Members contribute resources (funds and staff) and/or expertise in support of PPJV activities.

The purpose of the State Action Group/Steering Committee is to form a coalition of private, state, and Federal organizations within each state to develop and implement a cooperative effort directed to protect, restore, create, and enhance wetland and associated grassland habitat. Basic strategies will integrate wildlife, agriculture, water development and other land uses into a plan of action on public and private land that will provide long-term benefits to wildlife.

The State Action Group/Steering Committee will:

- Coordinate wildlife and other resource-based programs to avoid duplication and determine how each specific program can complement others to the benefit of all.
- Develop, review and submit NAWCA projects to the North American Waterfowl and Wetlands Office.
- Define, prioritize and quantify, (e.g., numbers of acres, numbers of structures) specific strategies necessary to implement the State Action Plan. Review and update State Action Plans on a 5-year basis.
- Develop and implement specific habitat protection, restoration, management, and enhancement projects.
- Facilitate communications on PPJV activities and needs between partners, the media, legislators, Governor and other local and regional officials.
- Provide the PPJV Board with priority needs including funding and communication products.

All State Action Groups/Steering Committees are encouraged to use their own initiative to identify priorities that they deem most appropriate to the achievement of PPJV goals and objectives.

PPJV MANAGEMENT BOARD PRIORITY ACTIONS

This section identifies the priority tasks to be accomplished during the period, extending from authorization of this update, until a reevaluation determines the need for another update. The list of actions has been substantially scaled down from the original Implementation Plan, reflecting both substantial accomplishments in the PPJV and changes in need. Activities identified here should be recognized as not all inclusive. The PPJV Board recognizes the need to respond to changing needs and opportunities.

The Joint Venture will focus on accomplishment of the following actions by 1999. The Board will review and take action on items at each Board meeting and review progress and accomplishment.

PLANNING AND EVALUATION

- Address the need for quantification of habitat and management actions needed in each state to achieve the PPJV goals and waterfowl objectives by the end of 1995.

Completion of this task includes:

- Develop the GIS capabilities needed to match habitat and management actions to specific landscapes.
- Develop economic parameters for consideration in developing priorities for action within various landscapes and among landscapes by the end of 1995.
- Ensure that the PPJV Evaluation Plan is implemented and used to monitor and guide activities.
- Address the differences in planning approaches between Region 6 and Region 3 such as the operation of the Habitat and Population Evaluation Team (HAPET) offices.

LEGISLATION AND REGULATION

- Provide input to the 1995 Farm Bill, especially the CRP, but including Swampbuster, Sodbuster and other provisions that significantly influence the goals and objectives of the PPJV.

The Joint Venture will do its utmost to provide information on the waterfowl and wetland conservation benefits of CRP and other Farm Bill provision, and on the importance of maintaining or increasing these benefits through the 1995 Farm Bill. The Joint Venture will ensure that all NAWMP partners give premiere consideration to duck production in any positions or actions taken by them.

- Continue efforts to resolve the "in lieu of taxes" issue in the PPJV.

ENHANCE PRIVATE LANDS MANAGEMENT

- Expand private lands programs as determined necessary to meet habitat and management needs identified for private lands through the PPJV Technical Team and HAPET efforts. The priority within this task will be for the PPJV partners to provide the trained needed personnel to expand private lands projects and programs.

FUNDING

- Seek funding alternatives and partnerships to meet funding requirements for intensive habitat management projects and activities in the PPJV and in any cooperative projects with the Prairie Habitat Joint Venture.
- Increase PPJV congressional outreach with special emphasis on support for the NAWCA and NAWMP funding. Work with PPJV partners to focus activities and align NAWCA expenditures with the priorities of the NAWMP.
- Ensure that at least three major NAWCA projects are submitted from the PPJV for each selection round.

ORGANIZATIONAL

- Ensure that Action Groups or Steering Committees in each state are active and actively supporting the priority tasks of the Joint Venture.
- Seek opportunities to cooperate in cross-border projects with the Prairie Habitat Joint Venture.
- Seek opportunities to join with new partners in support of PPJV objectives.

COMMUNICATIONS/EDUCATION

- Increase awareness in the public and among all PPJV partners that ecosystem restoration is the preferred response to the loss of wetland/grassland breeding habitat in the PPR.

PREDATOR MANAGEMENT

- Support research and literature review regarding predator management.

STUDIES OF NON-GAME RESPONSE TO VARIOUS MANAGEMENT STRATEGIES

- Basore, N.S., L.B. Best and J. B. Wooley, Jr. 1986. Bird nesting in Iowa no-tillage and tilled cropland. *J. Wildl. Manage.* 50:19-28.
- Blankespoor, G.W. 1980. Prairie restoration: effects on nongame birds. *J. Wildl. Manage.* 44:667-672.
- Bock, C.E., V.A. Saab, T.D. Rich and D.S. Dobkin. 1993. Effects of livestock grazing on neotropical migratory landbirds in western North America. Pages 296-309 *In* Status and Management of Neotropical Migratory Birds. Eds. D.M. Finch, P.W. Stangel. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Gen. Tech. Rep. RM-229. Fort Collins, CO.
- Bollinger, E.K., P.B. Bollinger and T.A. Gavin. 1990. Effects of haycropping on eastern populations of the bobolink. *Wildl. Soc. Bull.* 18:142-150.
- Bowen, B.S. and A. Kruse. 1993. Effects of grazing on nesting by upland sandpipers in southcentral North Dakota. *J. Wildl. Manage.* 57:291-301.
- Dale, B.C. 1993. 1992 Saskatchewan non-game bird evaluation of North American Waterfowl Management Plan - DNC and Short Grass Cover - 1992. Sask. Wetland Conservation Corporation, Regina, Sask. 23 pp.
- Dale, B.C. 1992. North American Waterfowl Management Plan implementation program related to non-game bird studies within the Prairie Habitat Joint Venture Area. Annual Report 1991-1992. Unpub. report. CWS, Saskatoon. 66 pp.
- Dale, B.C. 1991. North American Waterfowl Management Plan implementation program related to non-game bird studies within the Prairie Habitat Joint Venture Area. Annual Report 1990-1991. Unpub. report. CWS, Saskatoon. 57 pp.
- Frawley, B.J. and L.B. Best. 1991. Effects of mowing on breeding bird abundance and species composition in alfalfa fields. *Wildl. Soc. Bull.* 19:135-142.

- Hartley, M.J. 1994. Passerine abundance and productivity indices in grasslands managed for waterfowl nesting cover. Unpub. Rpt. Sask. Wetland Conservation Corporation, Regina, Sask. 10 pp.
- Hemesath, L.M. and J.J. Dinsmore. 1992. Factors affecting bird colonization of restored wetlands. *Prairie Nat.* 25:1-11.
- Herkert, J.R. 1994. Breeding bird communities of Midwestern prairie fragments: the effects of prescribed burning and habitat-area. *Nat. Areas J.* 14:128-135.
- Higgins, K.F., T.W. Arnold and R.M. Barta. 1984. Breeding bird community colonization of sown stands of native grasses in North Dakota. *Prairie Nat.* 16:177-182.
- Johnson, D.H. and M.D. Schwartz. 1993. The Conservation Reserve Program: habitat for grassland birds. *Great Plains Res.* 3:273-295.
- Johnson, D.H. and M.D. Schwartz. 1993. The Conservation Reserve Program and grassland birds. *Cons. Biol.* 7:934-937.
- Jones, R.E. 1994. Non-waterfowl evaluation of Manitoba's North American Waterfowl Management Program. Unpub. Rpt. Wildlife Branch, Manitoba Department of Natural Resources, Winnipeg, Man. 15 pp.
- Kantrud, H.A. 1991. Grazing intensity effects on the breeding avifauna of North Dakota native grasslands. *Can. Field Nat.* 95:404-417.
- Kennedy, C.L. 1994. Effects of grazing on nongame breeding birds, insects, and vegetation in Conservation Reserve Program grasslands in North Dakota. M.S. thesis, South Dakota State University. 65 pp.
- Kreil, R. et. al. 1993. A review of wildlife management practices in North Dakota: effects on nongame bird populations and habitats. Unpub. report to the U.S. Fish and Wildlife Service, Denver.
- LaGrange, T.G. and J.J. Dinsmore. 1989. Plant and animal responses to restored wetlands. *Prairie Nat.* 21:39-48.
- Luttschwager, K.A. and K.F. Higgins. 1994. [In Press]. Nongame bird, game bird, and deer use of Conservation Reserve Program fields in eastern South Dakota. *Proc. S.D. Acad. Sci.* 00:000-000.

- Lysne, L.A. 1991. Small mammal demographics in North Dakota Conservation Reserve Program plantings. M.S. thesis, University of North Dakota, Grand Forks. 48 pp.
- Messmer, T.A. 1990. Influence of grazing treatments on nongame birds and vegetation structure in South Central South Dakota. Ph.D. thesis, North Dakota State University, Fargo. 147 pp.
- Peterson, K.L. and L.B. Best. 1987. Effects of prescribed burning on nongame birds in a sagebrush community. *Wildl. Soc. Bull.* 15:317-329.
- Prescott, D.R.C., R. Arbuckle, B. Goddard and A. Murphy. 1993. Methods for monitoring and assessment of avian communities of NAWMP landscapes in Alberta, and 1993 results. Alberta NAWMP Centre. NAWMP - 007. Edmonton, Alberta. 48 pp.
- Renken, R.B. and J.J. Dinsmore. 1987. Nongame bird communities on managed grasslands in North Dakota. *Can. Field Nat.* 101:551-557.
- Reynolds, R.E., T.L. Shaffer, J.R. Sauer and B.G. Peterjohn. 1994. Conservation Reserve Program: benefit for grassland birds in the northern plains. Unpub. report. U.S. Fish and Wildlife Service, Bismarck. 22 pp.
- Sewell, R.W. 1991. Floral and faunal colonization of restored wetlands in west-central Minnesota and northwestern South Dakota. Pages 108-133 In Proceedings of the Eighteenth Annual Conference on Wetlands Restoration and Creation. Hillsborough Community College, Tampa, Florida.

IMPLEMENTATION GUIDELINES FOR MANAGEMENT STRATEGIES

Introduction

These guidelines generally describe waterfowl and other wildlife population levels, habitat conditions and additional factors that combine to make the treatment applicable to a particular situation or landscape.

Waterfowl management guidelines are intended to target practices to the appropriate situation in order to ensure maximum benefits and cost effectiveness. The intent is to shift from an opportunistic approach to the most efficient and cost effective methods that are possible. Opportunity and feasibility, however, will continue to be strong influences.

While it may be most cost effective, for example, to acquire a certain area in fee title, that option may not be available. Less efficient means must be pursued. The intent is not to take judgment out of the hands of field personnel. Rather, it is to clarify the range of conditions under which a practice is most effective and to assist in identifying situations in which certain practices may yield higher benefits. Local landscape knowledge, experience, budgets, and judgments will be important factors in determining what actions are implemented. Guidelines are intended to ensure that at any level of activity, optimum benefits are realized.

Guidelines for actions to achieve PPJV Objective 2 need to be further developed and refined. These guidelines may or may not be similar to waterfowl management guidelines. In the case of shorebirds, for example, the PPJV Draft Shorebird Management Plan (Appendix F) provides a number of wetland management techniques for shorebirds that can be incorporated as part of an overall management scenario. Specific management recommendations for other non-waterfowl migratory birds are being pursued with experts involved in Partners in Flight and Federal and state agency non-game and endangered species programs. The PPJV Board will support the development of management guidelines for non-waterfowl species that can be incorporated into overall wetland/grassland management practices in the PPR.

Quantification of Habitat

Methods or approaches that quantify the amount of habitat to be protected, restored, and enhanced need to be refined in order to reach the objectives of the PPJV for both waterfowl and non-waterfowl migratory birds.

This challenge has been differently approached in the Service's Region 6 and Region 3 portions of the PPJV. In Region 6, the Service Habitat and Population Evaluation Team (HAPET) office has developed and used the Multi-agency Approach to Planning and Evaluation (MAAPE) process. The MAAPE process has used the existing FSM sample plots and data to estimate current waterfowl populations and recruitment rates for each of the 14 wetland management districts comprising the prairie pothole portion of North Dakota, South Dakota, and northeastern Montana. By "treating" the landscape sample in each WMD and expanding the results, Region 6 has been able to estimate the total habitat and management that may be needed in the subject area. Changes in waterfowl production and the relative effectiveness of various potential treatments on each sample were evaluated and compared using the mallard production model, waterfowl management guidelines, and the combined expertise of a multi-disciplinary work group from each WMD. While the results of these MAAPE evaluations are but one of a nearly infinite potential combination of strategies, the MAAPE process has been used to develop a reasonable quantification of habitat and management needs for the PPJV in the Service, Region 6.

In Region 3, monitoring is used to gauge progress toward objectives, and to provide information for planning. The FSM sample plot surveys (established in the Minnesota and Iowa portions of the PPJV) are used to gather baseline data on waterfowl breeding pairs and recruitment; other wetland migratory birds are also recorded. In addition to the FSM surveys, point count surveys have been established to monitor grassland-dependent migratory birds, and scent post surveys are conducted to provide information on the status of predator populations.

Guidelines and Strategies are presented under the following headings:

- Wetlands
- Grasslands
- Populations
- Communications

WETLANDS

Protection and management of wetlands will ensure maintenance of public values such as wildlife habitat, reduced soil erosion, lessened flood damage, enhanced water quality, reduced pollution, and increased recreational and educational opportunities.

STRATEGIES AND GUIDELINES

Wetland Protection

→ Acquisition (Easements or Fee Title)

- Habitat acquisition priorities should focus on providing a complex of various wetland types from ephemeral to permanent interspersed with grassland to fulfill habitat requirements for a wide variety of wildlife species.
- Acquisition of land in fee title, and/or easement from willing sellers, will provide secure protection and management capabilities for wetlands and associated grasslands.
- Acquired tracts will be managed by a range of agencies from Federal, state, and county government to organizations with land management capabilities.

→ Location

- Select areas where existing cover or potential for cover development will provide secure nesting sites.
- Where loss of wetlands is imminent or potential for loss is high.
- Target wetlands near areas where nesting habitat treatments have been applied. This protects wetlands in areas where money has been spent to provide for increased recruitment.

Wetland Restoration

Restoration of wetland complexes that provide a variety of wetland habitat types on public and private land will maximize natural diversity, and offer suitable breeding and migrational habitat for many different wildlife species.

Vegetative response to wetland restoration will vary among areas depending on time since drainage, past agricultural practices, and effectiveness of drainage. Generally, restored wetlands that were drained within 30 years provide a greater coverage of emergent vegetation and plant species diversity than restoration of wetlands drained over 30 years ago. Wetland basins that have been reflooded periodically will maintain a more diversified and viable seed bank, and should be targeted for restoration.

→ Location

- Give top priority to areas where quality nesting cover is abundant, nest success is high (≥ 20 percent based on Mallard Model or nest studies), and wetland numbers are low.
- Pair habitat (small wetlands) should be restored in areas that have adequate brood habitat.
- Brood marshes should be developed in areas with adequate pair ponds.
- Exceptions to these rules could be made for specific wetlands that provide all the requirements for certain species such as canvasbacks.

→ Size

- The size of restored wetlands will be partly determined by the previously existing wetland, cost, objective, and numerous other factors. Data on pair/wetland relationships indicate that more pairs per acre can be attracted to several small ponds, say 1 to 5 acres compared to fewer large ponds. In other words, five 2-acre ponds will likely attract more pairs than one 10-acre pond.
- Larger wetlands (≥ 20 acres) provide a higher number of breeding bird species, because they offer greater structural diversity of vegetation, a larger food base, and a more reliable water supply.

Wetland Creation

This treatment involves creating new wetlands where none existed previously. Techniques could include blocking/damming water ways, dredging ponds, or diking low lying areas.

→ Location

- Create wetlands in association with high quality nesting cover and where nest success is high.
- Avoid watersheds where soil erosion in the drainage is likely to fill in the wetland.
- Target areas where ratio of watershed to surface area of created wetland is 10:1.
- Target areas where complementary ponds (brood, pair) exist or will be built to provide a wetland complex. Do not build isolated ponds.
- Avoid areas near riparian habitat (mink habitat).

→ Type/Size

- Do not build dugouts adjacent to (edge of) natural semipermanent wetlands (dugouts of this type attract mink and do not provide sufficient shallow zone).
- Plan pond to provide mix of semipermanent or better water depth and also ample shallow zones.
- Target areas with fertile soil.

Seasonally Flooded Wetlands

This treatment involves installing water control structures in low lying hay meadows that are naturally or artificially drained. The process results in mutual benefits. Water is trapped on hayland and provides wetland habitat attractive to breeding ducks similar to naturally occurring seasonal wetlands. Later in the season when many nests are near hatching, water is drawn off these areas to allow increased vegetation growth and haying. This action allows increased hay production in many years.

→ Location

- Locate in areas with other pair wetlands including semi-permanent type.
- Target areas with brood water within one mile.
- Select areas that have sufficient quality nesting cover to result in high nest success (use Mallard Model).

→ Other Considerations

- Control structure should not allow the water to be drained below its previous low level.
- For breeding pairs, drawdown should occur between June 1 to July 15.

Wetland Enhancement

→ Water Level Manipulation

Water control structures can be used when possible to increase management capabilities through water level management on individual basins or entire wetland complexes. Timing, water depth, and duration of drawdowns or flooding are all important considerations to successfully manage for migratory birds. Managing wetlands for 30-50 percent emergent cover (hemi-marsh) through drawdowns for vegetative regeneration is important for maintaining suitable vegetative structure. Water level manipulation is important to maintaining critical brood habitat for birds as well as an abundant source of invertebrates for food.

→ Cattail Control

Cattails become so dense in some wetlands that those wetlands become virtually useless to ducks. Various techniques such as burning, forced grazing, disking, herbicides, mowing and water manipulation are used to reduce or eliminate cattail growth from some portion of the wetland and provide open water. The objective is to create a hemi-marsh situation ideally with a moat of open water around cattails in the wetland center.

→ Location

- Select areas with existing nesting habitat other than the cattail marsh or use in combination with upland habitat improvement, nest structures or islands. (Exception to this may be justifiable if canvasbacks or redheads are targeted. If so, locate where canvasback or redhead occur.)
- Select cattail marshes where water is virtually non-existent.

Contact the Service, USDA, or Ducks Unlimited, Inc. for details on techniques.

GRASSLANDS

Endemic wildlife evolved to fill specific ecological niches within the PPR. Historically, native grassland provided habitat for many wildlife species. The PPR landscape has undergone significant alteration since early settlement. Activities with universal impact on wildlife throughout the region included (1) deterioration of the native grazing community, (2) cultivation of grains and introduced grasses, and (3) draining of wetlands.

Protection, restoration, and management of grasslands will ensure public values such as wildlife habitat, reduction of soil erosion, increased water quality, and recreational opportunities.

Grassland Protection

→ Grassland Acquisition (Easements or Fee Title)

Remnant native grassland and select CRP lands will be acquired by fee title from willing sellers.

The objective of grassland easements is to maintain these areas by preventing conversion to cropland. Currently the Service's Realty Division is administering an easement program and is in the process of developing criteria. Haying is delayed on grassland easements until after July 15, but there are no restrictions on grazing. With the exception of delaying hay operations, grassland easements do not provide benefits greater than those currently in place on grasslands. Easements may be taken on cropland with provisions to reestablish grassland cover. In this case, advantages to duck recruitment potential may be realized.

→ Location

- Target areas with high density of wetlands, especially in temporary, seasonal, and semipermanent classes (wetlands can be on areas adjacent to the easement).
- Avoid areas with trees or tall shrubs > 1.5 m.
- Recent studies are demonstrating that nest success on coyote dominated areas is generally higher than on those areas dominated by red fox. Give priority to coyote dominated areas vs. fox dominated.

- Give priority to native pasture vs. introduced grasses.

→ Size

- Target relatively large blocks ≥ 640 acres. The larger the better.

→ Management

- Some grasslands and cropland will need to be reseeded/seeded to be beneficial or meet the requirements for taking an easement. This may cause the price to be prohibitive if cost is to be borne by the agency obtaining the easement.

For more information contact the Service Realty Office in your state.

Grassland Restoration

Restoration of native grasses or enhancement of uplands with dense nesting cover should provide a mosaic of vegetative types from short, sparse vegetation to dense cover for the various species of birds, including waterfowl, that will utilize the area.

Planted cover and idle grass cover, such as that planted on land enrolled in the USDA CRP, and native grasslands provide attractive nesting cover with high nest success for upland nesting birds. Idle grass uplands adjacent to wetlands or wetland corridors, such as waterways or drainage ditches, provide essential nesting cover for wetland-associated species. Similar benefits may be realized from nesting cover established on state, Federal, and private lands specifically managed for upland nesting birds. Cropland (which has generally low attractiveness and nest success) converted to one of these habitat types may be the most beneficial method of improving the overall biodiversity of an area.

Conservation Reserve Program

Maintain 6-7 million acres of CRP in the PPR to provide critical wetland and grassland habitat for waterfowl and other wetland-associated wildlife.

Various studies have indicated that taking the land out of agricultural production and establishing perennial cover (CRP) has increased waterfowl nesting success and benefitted many other non-waterfowl species. The attractiveness and availability of CRP has increased potential for wildlife production by providing nesting habitat and protection from predators.

Maintain and expand CRP (in larger block sizes (> 160 acres) with multiple contracts to create 1000-2000-acre blocks) in areas of high natural resource value such as riparian areas, wetlands, floodplains, uplands associated with wetlands and habitat for threatened or endangered species.

Convert CRP land with high environmental priority such as wetlands to perpetual easements based on fair market value.

Increase involvement of landowners in resource conservation goals by providing adequate technical and educational assistance for preparing and implementing conservation plans.

Grassland Management

→ Native grass

Maintain in healthy state by using fire, grazing, or mowing treatments. Mismanaged native grasslands tend to succeed to blue grass dominated cover that is of little value to nesting ducks.

→ Planted cover

Planted cover needs to be renewed occasionally. The technique will vary and may include mowing and grazing, but disturbing soil or complete reseeding may be necessary.

→ Delayed Haying

Hay fields, especially alfalfa, can provide attractive nesting cover that is relatively secure from nest predators. Most hayland provides little residual cover in early spring and thus does not attract ducks until later when new growth occurs.

Subsequent haying takes place prior to when most nests hatch, destroying the potential benefits of this cover type. In some circumstances delayed haying may provide the extra time needed for nests to hatch.

Benefits from delayed haying operations must be assessed annually.

→ Location

- Target areas with currently high numbers of wet ponds (wet years) and high duck numbers.
- Target blocks of hayland (not narrow strips) with uniform, monotypic vegetative stands and terrain.
- Avoid fields with trails, vehicle tracks, debris, dugouts, windmills, buildings, etc. These features attract predators to venture into the field.
- Target areas with low amounts of competing cover. The idea is to pay for delayed haying only on fields that will have a high number of nests.
- Avoid fields < 20 acres.

→ When

- Delay haying until July 15

NOTE: Checking fields by dragging or other means will allow you to determine the value of that field, possibly prior to setting up an agreement.

→ Minimum-Till Spring Wheat

Residual cover from standing stubble can provide limited nesting cover which is attractive to early nesting species, particularly pintails. Fields with such limited cover are preferable to aggressively tilled fields. Additionally, the residual cover may provide moisture and soil conservation benefits.

→ Location

- Target areas near wetlands and where soil erosion is most severe.
- Avoid sunflower fields. Predators in the spring are attracted to fields that were planted to sunflowers the previous year.

→ No-Till Winter Wheat

Winter wheat sown in standing stubble provides moderate residual cover in the form of stubble and vegetation. Winter wheat often gets a head start on spring sown small grain and provides a better cover for nesting ducks and other birds. Nest success in winter wheat has been found to be acceptable (about 30 percent "Mayfield").

→ Location

- Recommended for any area, but especially in intensive agricultural areas.
- Avoid fields with rock piles, junk piles, etc.
- Target large, uniform blocks of land.
- Target areas with high number of wetlands.

→ Other

- Stubble should be tall (12 inches) to trap snow. This is important for seedling survival.
- Rotate to flax every third year, especially if weeds are a problem.

→ Sweet Clover Underseeding with Small Grain

This practice is recommended for spring seeded small grain fields that will be fallowed the following spring. The sweet clover protects soil during the fallow period, adds nutrients, and traps snow during the winter. No nest success data is available, but it is expected to be comparable to other cover with similar height and density. Benefits of this practice are reduced substantially if haying takes place earlier than July 10, so incentive payments are usually necessary for delayed haying.

→ Location

- Areas scheduled for fallow the following spring.
- Target areas with high numbers of wetlands.

- Select areas with limited acres of CRP or other highly attractive cover (to avoid competing with this type of more stable cover).

→ Size

- ≥ 20 acres (larger is better).

→ Grazing Programs

The benefits of grazing systems are mutual, providing increased forage for cattle and enhanced cover for nesting ducks. The WPAs may be included in grazing programs to manage vegetation.

→ Location

- Any pasture area is appropriate for a grazing system, but coyote dominated areas should result in a higher duck yield than areas dominated by red fox.
- Select areas with high numbers and acreage of wetlands (high pair potential).

→ Size

- The larger the better. Target for areas ≥ 320 acres, with no maximum size limit.

→ Reduced Mowing on Highway Rights-of-Way

Highway and Railroad Rights of Way (ROW) often provide the only substantial area of cover in some landscapes. Nest success on some of these areas has been found to be relatively high. Competing interests such as haying, weed control, safety and aesthetic appeal all tend to compromise the value of ROW for nesting ducks. For example, if all unimproved section lines were maintained in grass cover, this would provide 1.5 million acres of habitat in North Dakota. Other states could benefit similarly depending on laws governing the use of these areas. However, not all ROWs are equally valuable as nesting areas for ducks. In fact some ROW areas are extremely attractive to predators.

→ Location

- Select wide Rights of Way along well traveled hard surfaced roads (divided highways and Interstate highways are best).
- Target areas with numerous wetlands.

→ Management

- Mow every second year after July 15. Alternate mowing by area.
- Determine which areas have high nest success and target these for management.

Tree Removal

Trees provide nesting sites and perches for aerial predators such as hawks, owls, and crows. Trees also provide den sites for mammalian predators, primarily raccoons. Felling and removal of tree remains may substantially reduce predation of duck nests and hens in some areas.

→ Location

- Where areas have been established specifically for waterfowl production such as WPAs.
- Nearer areas where intensive treatments are being applied (e.g. predator exclosures, nest structures).

NOTE: Remove all slash and debris. Otherwise predators such as skunks and fox may be attracted to the site.

POPULATIONS

Monitoring

Develop monitoring and evaluation methods to document population responses of other wildlife to habitat and management for waterfowl, and incorporate those methods into PPJV monitoring and evaluation plans.

Directed Studies

Evaluate in each state all waterfowl management practices for potential adverse effects on other wildlife, especially those targeted under objective #2. Determine means of avoiding, offsetting, or mitigating these effects to ensure at least a neutral cumulative effect.

Models/Surveys

Obtain, and where practical, develop information on population limiting factors and population responses to waterfowl habitat development and management actions for species to be managed under Objective #2.

Support development of quantitative population objectives by agencies and organizations with management interests and responsibilities for other species of wetland dependant wildlife and other declining wildlife endemic to the PPR.

Predator Management

→ Exclosures

Exclosures are designed to separate nesting hens and nests from ground predators. Electric fences are the most commonly used barrier. Exclosures represent an intensive management effort that requires initial expense and regular maintenance throughout the nesting season. Mallards and gadwalls are the primary duck species attracted to fenced areas, but other species of birds, including non-waterfowl migratory birds, also benefit. A density of 1 - 2 duck nests per acre should be targeted.

→ Location

- Locate near good wetland habitat, preferably where 10 - 20 percent of the land within 1/2 to 1 mile of the exclosure is wetland.

- Within one-half mile of 60+ acres of semipermanent wetlands and as many seasonal wetlands as possible.
- Avoid fresh or slightly brackish permanent or semipermanent wetlands, stock dams, dugouts, and streams. Avoid building adjacent to areas to be fenced. These situations increase occurrences of mink. If unavoidable, place enclosure ≥ 220 yards from such mink habitat.
- Surrounding area (up to 1 mile radius) should have relatively poor nesting cover, and low nest success (use Mallard Model).
- Terrain inside fence should be level to gently rolling and soil should be high quality, and stable.
- Fenced area should be void of features that attract predators such as trees, rock piles, buildings, and wetlands.
- Secure brood travel cover should be available between enclosure and brood water. Small grain cover will usually be adequate (dense cover is likely not available if area is appropriate for fence).

→ Size

- 20 - 80 acres. Areas less than 20 acres will probably not attract enough duck pairs to justify cost. It takes almost as much effort to maintain a 20-acre fenced area as it does an 80-acre one.
- Exclosures should be 3 or 4 sided with no inside (concave) corners.

→ Management

- Fences should be designed to allow deer to exit
- Establish dense cover with minimum residual Robel value of 1.5 decimeters. Cool season grass (such as intermediate wheatgrass/legume mix is suitable. Buckbrush and wild rose are also suitable cover.

- Close enclosure and remove predators just prior to nesting in spring. Use track sign to determine if predators are inside when gates are closed. Do not trap outside enclosure.
- Check fence and maintain predator control regularly (daily/weekly) through nesting season.
- Open fence at end of season to prevent prey buildup and to allow free access in and out by deer.
- In dry years consider that exclosures may not be worth maintenance effort.
- Consult Ducks Unlimited, Inc., or Service for fence design.

→ Fenced Peninsulas

→ Location

- For peninsulas > 5 acres in size located on semipermanent or permanent wetlands
- Brackish and alkaline wetlands are preferred
- Substantial pair and brood habitat nearby
- Other guidelines similar to stand-alone exclosures

→ Peninsula Cutoffs

This treatment creates a water barrier that in essence converts a peninsula into an island. Gadwall, mallards, and blue-winged teal are the principal species nesting on cutoffs. Other duck species, such as pintail and lesser scaup, are found in lesser proportions.

→ Location

- Select large brackish or alkali wetlands because they are likely to have low use by raccoons and mink (cutoffs are not 100 percent predator proof).

- Near \geq 60 acres semipermanent brood wetlands with emergent vegetation and large numbers of seasonal wetlands within 1/2 to 1 mile to attract pairs.
- Where surrounding attractive nesting cover is minimal.
- Cut-off channel should create \geq 100 yard water barrier with trench not deeper than surrounding bottom, but not less than 2 feet.
- Slope edge of trench to not create a cut-off bank that attracts muskrat and consequently mink.
- Avoid areas with substantial emergent vegetation near cut-off.

→ Size

- Peninsula size is site specific, but because of expense > 5 acres is recommended.

→ Management

- Trap peninsulas annually just prior to nesting season and check occasionally (search for tracks) to see if predator removal was complete.
- Establish nesting cover with Robel value of 1 - 1.5 decimeters if existing cover is inadequate. Brush type cover is suitable and should require no annual maintenance. Seeding grass/legume cover in winter when construction is completed has worked well.
- Remove trees, tall shrubs > 1.5 m, rock piles, debris, etc., that may provide cover/attraction for predators.

Consult with Ducks Unlimited, Inc. or Service for techniques and specifications for creating cut-offs.

→ Nest Structures

Properly designed nest structures provide nest sites for mallards that are secure from ground predators if properly placed. Hay bales may not provide adequate protection from raccoon and mink.

→ Location

- In Class III (Stewart and Kantrud) or semipermanent wetlands. Semipermanent wetlands are preferred.
- ≤6 feet from emergent vegetation.
- Where water depth is 18 inches minimum (when wetland is at normal level).
- Avoid areas with trees nearby.
- Where the attractiveness of surrounding cover is marginal for duck nesting (cropland and grazed pasture dominate).
- Where nest success in existing cover is low.
- Areas with high density of wetlands and mallard pairs.
- No more structures than the number of mallard pairs in the area (maximum density = 1 per acre).

→ Management

- Culvert type nest structures should be filled with soil to anchor in place and provide base for vegetative growth (culvert type structures are low maintenance compared to some other types).
- Baffle may have to be installed to allow mallard hen and Canada geese to co-exist.

For information on availability and installation of nest structures, contact Service, ND Game and Fish Department, SD Department of Game and Parks.

→ Create Islands

Small, man-made islands provide secure nesting sites that are used particularly by mallards, gadwall, and lesser scaup. Other duck species and Canada geese will also use islands in lower concentrations. Some islands attract extremely large numbers of nesting ducks (> 30 nests per acre).

→ Location

- Large (≥ 25 acres) alkali wetlands with water depth of about 2 feet (shallow depth minimizes construction cost).
- Where numerous wetlands exist in surrounding area to provide pair habitat and brood cover.
- Where nest predation in mainland cover is known or expected to be high.
- In areas where competing cover is minimal.
- Where a minimum water gap ≥ 100 yards from shore can be maintained.

→ Size

- Generally, islands should be constructed at 3/4 to 1 acre surface area above water. Smaller islands have been made and used successfully by ducks, but are subject to more rapid loss due to wave and ice erosion than large islands. Islands are expensive to build, so only the most suitable sites should be used. In general, ten 1 acre islands are better than one 10 acre island from duck use and success standpoint.
- Numerous islands can be created in a single wetland but islands should be separated so they are within the breeding territories of more breeding pairs.

→ Management

- Islands should be covered with a minimum of 4 inches of top soil and planted with vegetative cover (intermediate or tall wheat/legume mix is preferred). Shrubs such as buckbrush and rose require some effort to plant, but require little maintenance and are very attractive to ducks. Shrubs should be planted in

small patches in the center of the island where grass/legume mix was purposely not planted.

- Visit islands annually in the spring and trap predators that are present. Maintain predator control through nesting season.
- Gulls can cause problems on some islands, but may be deterred by planting dense cover to eliminate bare areas.

Consult with Ducks Unlimited, Inc. or Service for information on construction techniques, permits, etc., that are involved in island creation.

→ Manage Natural Islands

Natural islands occurring in wetlands often represent "ready made" secure nesting sites that are attractive to several duck species. While some islands are adequate "as is," most require some form of enhancement or management to obtain maximum benefits. These efforts can be costly, so prioritizing sites is important.

→ Location

- Any natural island may have potential, however, certain characteristics may be associated with the greatest benefits; alkali - best, brackish, then freshwater.
- ≥ 100 yards from shore.
- Near good wetland complex with ample pair and brood habitat.

→ Size

- One-tenth acre and larger.

→ Management

- Each island is unique and may require different levels of attention.
- Establish cover on islands if it currently does not exist.
- Remove debris, trees, tall shrubs > 1.5 m, etc.

- Trap in spring to remove predators. Especially in wet years.
- Minimize human disturbance.

→ Other

- Island characteristics will vary. Some islands may consistently be free of predators. Still, this needs to be determined and an annual visit is recommended. Island use by nesting ducks is extremely important for prioritizing efforts. Monitoring use will allow maximizing benefits per effort and provide information that can be used to identify other potential sites or management strategies.
- Some islands are suitable only in wet years when high water inundates connecting spit. Dry years may provide opportunity to "disconnect" islands from shore.
- The Habitat and Population Evaluation Team (HAPET) office will investigate the use of an automated system using remote sensed data and Geographical Information System techniques to identify and maintain a register of islands in the prairie pothole region.

→ Skunk Control

Skunks are the primary nest predator in some areas. Skunks are easy to trap in early spring (April) and, when combined with other management effort, skunk removal can provide an extra margin of security for nesting hens.

→ Location

- In areas where the predator community is simple and skunk densities are not extremely high (otherwise, alternate predators and adjacent skunk populations will quickly fill voids created).
- Target areas where coyotes are the primary canine predator as opposed to red fox.
- Concentrate effort near areas treated by other enhancement methods such as islands, planted cover, delayed haying, etc, or

alternately implement a broad scale intensive effort over a large area (township, county).

→ When

- Prior to whelping, April 1 to May 1.

→ Red Fox Control

Red fox are a major cause of nest loss and kill many nesting hens in some parts of the Prairie Pothole Region of North America. Broad scale control of fox is generally not practical. However, special circumstances may warrant fox removal that benefit ground nesting ducks. Data should be collected to establish the effectiveness of the effort in each case.

→ Location

- In areas where the predator community is simple and fox densities are not high.
- Near areas treated by additional enhancement measures such as on islands, delayed haying, planted cover, etc. This practice is probably beneficial only where fox densities are low or where complete control can be obtained.

→ Coyote Management

Field studies indicate that areas dominated by coyotes will generally have higher nest success than similar areas dominated by red fox. Coyotes tend to displace red fox, yet coyote densities are usually lower in the areas they dominate (in the PPJV). It is not clear whether densities will increase as coyotes become better established.

COMMUNICATIONS

Involve public land management agencies and private partners (organizations and individuals) in a broad scale unified effort to induce positive, long-term changes in land use on public and private lands to benefit waterfowl and other wildlife.

- Implement the PPJV Communication Strategy and action items over the next 5 years (See Appendix E).
- Develop common wetland habitat and wildlife population objectives with the "Partners In Flight Neotropical Migratory Bird Conservation Program."
- Cooperate with the Wetlands for the Americas program (Western Hemisphere Shorebird Reserve Network) to coordinate habitat protection projects that will benefit shorebirds and waterfowl.
- Develop educational material for distribution to conservation groups, schools, elected officials, and private citizens on the benefits of wetland protection and upland enhancement for wildlife.
- Utilize conservation groups to initiate and help fund wildlife projects on private and public land.

COMMUNICATION PLAN

INTRODUCTION

In 1987, the PPJV Board established the Communications Committee and gave the committee the following assignment:

"The Communication Committee plans, develops, conducts, and evaluates a communications/education program for internal and external audiences of the PPJV. The program will include the development of objectives and strategies, target audiences, communication products, and evaluation. The committee promotes the development of networking systems for information and education programs, extension programs, and media and environmental education efforts at the Federal, state and private levels for PPJV communications efforts."

Several basic goals will guide the committee's work with conservation education program development over the next five years:

- Develop awareness of the value of natural resources and the complex processes that maintain them.
- Develop educational messages on threats to the environment and what individuals and organizations can do to better manage and maintain natural resources.
- Motivate positive action to change and improve environmental management.

Additionally, goals originally developed for the PPJV Communications Plan will continue to guide program development in the next five years:

- Generate understanding, involvement, funding, and support among constituents to achieve the goals and objectives of the PPJV and the NAWMP.
- Educate about wetland values and how best to undertake management and protection efforts.
- Develop a public wetlands conservation ethic and increase citizen participation in wetlands conservation.

NEW AREAS OF EMPHASIS

Based on experiences and accomplishments to date, the committee has refined its efforts to meet the needs of the PPJV. Future communications activities and products in the PPJV will emphasize the following:

- Meeting information needs of customers and clientele.
- Developing community-based approaches to local issues and problems that can attract dollars and wide-spread support.
- Identifying opportunities for creating partnerships to enhance management of wildlife habitat.
- Developing holistic thinking and sound biological data for wetland restoration and habitat management.
- Encouraging responsible, informed decision making about managing wildlife habitat in the Prairie Pothole Region.

TARGET AUDIENCES

There are many diverse audiences that have shown an interest in, or have supported the PPJV through a variety of methods including financial donations, in-kind services, publicity, political support, and representation. These audiences include corporations and foundations, media, education, county and local governments, national, regional and local conservation groups, and political constituencies.

For the purposes of initiating the PPJV communications efforts, primary **target audiences** were landowners and agricultural groups, the media, and members of private conservation organizations (primarily local) with conservation interests.

As the PPJV communications strategy moves into its second phase, **target audiences** will be:

- Landowners, ranchers, farmers, agricultural and local conservation groups
- Agencies and organizations that are existing or potential partners in PPJV activities
- Legislators and Congressional Contacts
- Educational institutions K-12 and Universities

- Local and regional media outlets
- Land use decisionmakers

PROGRAM DEVELOPMENT

Initial efforts of the PPJV communication strategy focused on: (a) developing awareness of the NAWMP; (b) threats to waterfowl and waterfowl habitat; and (c) activities of the PPJV.

Efforts also included education, primarily in the form of technical materials for wildlife managers and landowners, and specific educational materials for K-12 educational audiences.

When the Service private lands enhancement program became a reality, communications and educational efforts began to work hand in hand with the program, resulting in several products such as the wetland easement brochure, wildlife extension brochures, wetland restoration videos, and Wildlife Project Idea Book that were produced in response to direct requests from landowners and private lands enhancement specialists.

As the PPJV communications plan moves into the next phase, (a 5-year window), activities and efforts will continue to be developed to address:

- needs identified in the private lands enhancement program;
- needs identified through surveys and communication with target audiences; and
- perceptions and emerging perspectives that affect the course of wildlife habitat management.

As part of the communications strategy, the "Theme For The Year" will be selected, and products, public events, and information will be developed to reflect that theme:

1994 Year of the Shorebird--Managing Wetlands, Waterfowl, and Shorebirds--A Systems Approach

1995 Alternative Strategies for Private Landowners To Manage Set Aside Lands

1996 Managing Ecosystems--The Watershed Approach

1997 Think Globally, Act Locally--Affecting The Community Involvement Process on Behalf of Wildlife

RESPONSIBILITIES FOR DISTRIBUTION OF INFORMATION TO ENSURE COMMUNICATIONS

- The Region 6 NAWMP Office and the Communications Committee will be responsible for developing and distributing information and products to all Board members, State Action Group Coordinators, Other Joint Ventures, the NAWMP office, other Service Regional Offices, private lands enhancement coordinators, national and regional political and media contacts where possible, national and regional outdoor and agricultural magazines where possible.
- Management Board members will be responsible for distributing information and products to their respective organizations and State Action Groups.
- State Action Group Coordinators will be responsible for developing and distributing information and products to all State Action Group members, local media outlets, political constituencies, agricultural and conservation groups, and Cooperative Extension Coordinators.
- State Action Group members will be responsible for distributing information and products to their respective organizations and personal contacts in the local community and target audiences.
- PPJV Flagship Project Coordinators will be responsible for distributing information and products to local landowners, local and regional media, political constituencies, and agricultural and conservation groups.

All PPJV partners are encouraged to become a member of an information distribution network of some type to ensure as broad a coverage as possible of PPJV information and education materials.

ACCOMPLISHMENT REPORTING

Now that the PPJV is in operation, reporting of accomplishments is an important and required task. The PPJV provides annual accomplishment information to the various accomplishment reports of the NAWMP. The PPJV has produced an Accomplishment Report (1991) in video format and has produced a written report for 1987-1993. The PPJV will hereafter provide a written Accomplishment Report on a 2-year basis.

Accomplishment information is critical for budget development and to increase support on behalf of the PPJV and the NAWMP.

The PPJV will use the International Tracking System as a mechanism to track habitat and dollar contributions to the PPJV and the NAWMP.

State Action Group Coordinators, together with Service Private Lands Coordinators and PPJV coordinators, will provide accomplishment information for development of all national and PPJV Accomplishment Reports.

ACTION ITEMS TO BE IMPLEMENTED

● **WORKING WITH THE MEDIA**

Target:	Local and regional media outlets, including press, radio and television
Responsible:	State Action Group Coordinators, Board Members, Flagship Project Coordinators, and local project managers will be primarily responsible for local and regional media contact.
Actions:	<ul style="list-style-type: none">→ Establish and/or enhance personal contacts on local and regional basis→ Ensure press releases, status reports, and general information are provided on regular basis→ Invite to become members of State Action Groups→ Invite to all special events, dedications, open houses→ Invite to special conferences, seminars, tours, and workshops→ Look for opportunities to involve the media; highlight local problems being resolved by local solutions→ Organize and conduct media tours

● **WORKING WITH THE AGRICULTURAL PRESS**

Target:	Agricultural press and television/radio
Responsible:	Flagship coordinators, State Action Group Coordinators, and local project managers

- Actions:
- Look for opportunities to collaborate and cooperate. Provide articles and information, fact sheets.
 - Seek interviews with local outlets (written and radio/television)
 - Work with County Extension Agents to provide information for weekly columns

- BROCHURES AND PUBLICATIONS

- Continue producing "PROGRESS NOTES" and support development and distribution of additional information items including inserts, brochures, news notes and action alerts on items pertinent to the PPJV.
- Title: Locating and Managing Islands To Enhance Waterfowl Production
 - Target: Managers and landowners
 - Responsible: Communications Committee--Messmer; January 1994
- Title: Locating and Managing Peninsulas to Enhance Waterfowl Production
 - Target: Managers and landowners
 - Responsible: Communications Committee--Messmer; November 1994
- Title: Progress Notes
 - Target: Internal & External PPJV partners
 - Responsible: Communications Committee--Lively; June & December
- Title: Partners for Wildlife Calendar
 - Target: Landowners and partners
 - Responsible: Communications Committee--Lively, Messmer; Annually
- Title: Tips and Guidelines On Conducting Partnership Appreciation Events
 - Target: Managers and Sportsman's Organizations

- Responsible: Communications Committee--Lively, Messmer, Madsen; FY94
- Title: Conservation "Newspapers"
- Target: Grades 5-8
- Responsible: Communications Committee--Lively, Pease; Annually
- Title: Predation Management--Status of Predators and Predator Management in the PPJV (Research Data and Tips on Non-lethal Predation Management)
- Target: Landowners, Sportsman and Wildlife Clubs
- Responsible: Communications Committee--Messmer; FY95
- Title: Shorebird Management On Private Lands, (Accompanies Shorebird Video)
- Target: Landowners, managers, university classrooms
- Responsible: Communications Committee & Western Hemisphere Shorebird Reserve Network FY 94/95
- Title: The Watershed Approach--What Is It? Why Is It Important?
- Target: Land use decision makers
- Responsible: Communications Committee, FY 95
- Title: Incorporating Wildlife Concerns Into Land Use Planning
- Target: Land use decision makers
- Responsible: Communications Committee, FY 95
- Title: Alternatives for Landowners When Set Aside Programs Come To An End
- Target: Landowners
- Responsible: Communications Committee, FY 95
- Title: Cattail Management--Maximizing Wetland Productivity

Target: Landowners

Responsible: Communications Committee, FY 95

→ Title: Minimizing Impacts of Agricultural Practices on Prairie Potholes

Target: Landowners

Responsible: Communications Committee, FY 95

- VIDEOS AND AUDIO VISUALS

→ Title: The Shorebird Video--continuing The Shorebird Education Project

Target: Landowners, managers, high school and university classrooms

Responsible: Communications Committee, Western Hemisphere Shorebird Reserve Network, National Ecology and Research Center, FY 94/95

NOTE: All products/materials produced as part of the PPJV communications strategy will use the following phrase as part of the credits or acknowledgement sections:

"This ----- has been developed in conjunction with or by the U.S. Prairie Pothole Joint Venture, a component of the North American Waterfowl Management Plan."

- CONFERENCES and PUBLICATIONS

→ Title: Planning and Implementing Communications in the PPJV-
-Article and Presentation at North American Wildlife Management Conference and publication in Wildlife Society Bulletin

Target: Conservation Community

Responsible: Messmer and Lively, FY 95

- WORKSHOPS AND SEMINARS

- Title: Fund Raising and Partnership Enhancement Workshops (Using New Fundraising Manual)
- Target: Service employees, State Action Group members, local conservation groups
- Responsible: Communications Committee, RW R6 Challenge Grant Coordinator, Service Office of Training and Education, FY95

- FIELD TOURS AND DEMONSTRATIONS--Experience in the PPJV in the last several years indicates that field tours and demonstrations are valuable tools in disseminating educational messages and materials.

State Action Groups, state and Federal agency personnel, private conservation group employees and local partners in PPJV activities are encouraged to use field tours and demonstration seminars on a regular basis.

The following are several focus areas for field tours and demonstrations:

- Congressional and Washington Office oriented--including North American Wetlands Council site visits, private lands tours, special invitations to new Federal, state, and private organization personnel
- Non-governmental oriented--including conservation groups at a regional and national level
- Landowner technical seminars and demonstration project tours
- Landowner recognition days

- DEDICATIONS AND OPEN HOUSES--These events have been successfully used in the PPJV to bring together landowners, agency personnel, private conservation groups, volunteers, and the media.

Dedications and open houses are encouraged. They increase good working relations with local partners, and stimulate new partnerships at local and regional levels. These are excellent opportunities to invite media participation.

Experience has shown that planning is critical for successful events. Early involvement by all joint venture partners and good publicity are crucial.

- FAIRS, MALLS, SPORTSMAN'S SHOWS--PPJV partner involvement with fairs, mall shows indicates that these types of events provide visibility, one-to-one contacts with a great variety of the general public, and are good outlets for a variety of informational products.

Participation in these events is encouraged where possible. The PPJV Communications Committee will support and provide materials where available. Local project leaders are encouraged to develop exhibits pertinent to their areas.

- CEREMONIES, RECOGNITION AND AWARDS--Recognition of individuals and organizations that have contributed to the PPJV and who are involved in unique and creative efforts should be publicly recognized for those efforts. The PPJV has several awards which may be used to recognize outstanding efforts:

The Professional Award (Ruddy)

Presented to a wildlife professional that has made an outstanding contribution toward furthering the goals of the PPJV and the NAWMP.

The Stewardship Award (Mallard)

Presented to a landowner (steward) in each of the PPJV partner states, who has made an outstanding contribution toward restoring, creating, or enhancing wildlife habitat in support of the goals of the PPJV and the NAWMP.

Group or Organization Award (Pintail)

Presented to a group or organization which has made an outstanding contribution to further the goals of the PPJV and the NAWMP.

Communications Award

Presented to a group or individual that has made an outstanding contribution to further the goals of the PPJV and the NAWMP through communications activities.

Nominations must be received by February 1st annually. Award winners will be announced at the Spring meeting of the PPJV Board.

NEW COMMUNICATION TECHNOLOGIES

Use of the "information highway" will become more common as skills and technology bring us closer to the 21st century. The Communications Committee will continue to investigate the use of electronic billboards and E-mail for distributing and downloading information for use by media, agency managers and landowners.

WORKING ACROSS THE BORDERS--SHARING IDEAS WITH CANADA AND MEXICO

The NAWMP is implemented by partnerships of organizations and individuals in Canada, the U.S. and Mexico. For the PPJV, working with Canadian counterparts and sharing information has been traditional since the beginning of the program. The PPJV partners are encouraged to continue these cross-border efforts with our Canadian counterparts, and also look south to Mexico. Mexico's interest in non-game species and the use of the PPJV area by shorebirds and neotropical migrants indicates possible areas for collaboration and information sharing. Indeed, the PPJV Shorebird Education Project provides information to interested groups from Brazil and Uruguay to Australia.

The following are several areas where information can be shared internationally:

- Progress Notes--add information and special notes (Alberta Accomplishment Report and Western Hemisphere Information).
- Query Canada/Mexico for information and educational materials being developed--share educational products from PPJV and Canada/Mexico joint ventures.
- Utilize Waterfowl 2000 and highlight international cooperation efforts.
- Incorporate cross-border programs and ideas where possible.

EVALUATION

Evaluation continues to be an important element of the PPJV Communications program. Most products and programs have received a general and informal evaluation, including success of distribution, use of materials, comments received, requests for additional materials, and overall cost.

All products have been, and will continue to be, targeted to specific audiences. In the case of the Partners For Wildlife Calendar, a specific formal evaluation and survey are currently being carried out.

"Products" continue to be an important element of the PPJV program and our experience indicates that "Progress Notes," the Partners for Wildlife Calendar, the "newspapers," the "Do Your Part" video, the Pesticide training program, and other types of materials that can be used in education and training settings are most often requested.

Informal inquiries have been received from several graduate students regarding a survey and evaluation of the PPJV communications program. To date, no formal agreements have resulted, and the offer remains open.

Clemson University



1601 010 218 600

[illegible]

DEMCO, INC. 38-2931

